

## **REMARKS/ARGUMENTS**

Applicant appreciates Examiner's thorough review of the Specification and note of deficiencies in the Information Disclosure Statement.

Specification has been edited where noted in the Office Action. The Title and Abstract have been amended where noted.

Claims 1-14 are pending in the application.

Claims 5 and 6 are rejected under 35 U.S.C. §112, first paragraph.

Claims 1 and 4 are rejected under 35 U.S.C. §102(b) as being anticipated by Cheng (US 6,707,164) hereinafter *Cheng*.

Claims 2, 3, and 5-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng in view of Lamson (US 6,822,340) hereinafter, *Lamson*.

Claims 10-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng in view of Grellman (US4,600,907) hereinafter, *Grellman*

Applicant respectfully traverses the above rejections. Arguments will be presented in the order of the rejections.

### **The §112 Rejections**

Applicant has carefully reviewed the application and respectfully asserts that the Specification is sufficiently enabling. The Federal Circuit has repeatedly held that "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation'." *In re Wright*, 999 F. 2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Applicant, who is skilled in the art, has asserted that "in an example embodiment, using packaging materials with a minimum porosity, and with appropriate manufacturing equipment, it is possible to construct and maintain an interior vacuum under the strip line region. In another example embodiment, a partial vacuum can be maintained. The maintaining of even a partial vacuum provides a reduction in the dielectric constant (Specification, page 4, lines 16-20)." Furthermore, not everything necessary to practice the invention need be disclosed. See *In re Bucher*, 929 F. 2d 660, 661, 18USPQ2d 1331, 1332 (Fed. Cir. 1991).

Consequently, the §112 rejection presented in connection with Claims 5 and 6 is not supported.

However, to facilitate prosecution, Applicant has removed the term “hermetically” from the claim language.

Applicant requests that the §112 rejection be withdrawn.

#### The §102 Rejection

*Cheng* is directed to “a package of a semiconductor chip with array-type bonding pads. The semiconductor chip has a plurality of bonding pads located about periphery of the chip, in which the semiconductor chip is characterized at the bonding pads being positioned in at least four rows along each side of the chip, the four rows comprising an inner row, a mid-inner row, a mid-outer row, and an outer row. The inner row and the mid-inner row of the bonding pads consist of signal pads, and the outer row and the mid-outer row of the bonding pads consist of power pads and ground pads (Abstract).

In contrast, Applicant’s claimed features of “bonding a lower strip line” and bonding an upper strip line’ are not disclosed in *Cheng*. In addition, the Office Action’s “note that since no dimensions or construction have been defined for a strip line, the bond wires discussed above may also be referred to as ‘strip lines’ (Office Action, page 5, lines 10-11),” does not overcome this lack of disclosure.

Applicant has provided definition and dimension. Applicant directs the Examiner to the Specification, “The present invention is useful in controlling the impedance of signal wires in a high count BGA package. By utilizing the bond wires of the package and placing ground planes above and below the bond wires, a strip line structure is created. . . (Specification, page 1, lines 27-30).” Furthermore, FIG. 1 and FIG. 2 depict strip line structures of more dimensions than those of the bond wires discussed in *Cheng*.

Consequently, *Cheng* does not anticipate Applicants’ invention.

Per MPEP §2131:

**“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently describe in a single prior art reference.”** *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628,631,2 USPQ2d 1051, 1053 (Fed. Cir. 1987). **The identical invention must be shown in as complete detail as contained in the . . .claim.”** *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). **The elements must be arranged as required by the claim.**

In view of the foregoing, Applicants respectfully assert that the rejections of claims 1 and 4 under 35 USC 102(b) of are improper and should be withdrawn.

#### The 1<sup>st</sup> 103 Rejection

Applicant respectfully asserts that *Cheng* and *Lamson* alone or in combination does not teach his invention. There must be a basis in the art for combining or modifying the references.

*Cheng* has been shown in the arguments presented *supra*, that he does not suggest or teach Applicant's invention and his claimed features of "strip-lines."

*Lamson* is directed to "A semiconductor device having reduced self and mutual capacitance of bonded wires is provided by coating the wires with a foamed polymer effectively having a very low dielectric constant. Additional benefits are realized by electrically insulating the wires against short-circuiting, by cushioning, the wires with a low modulus sheath, and by protecting chip bond pad metallization (Abstract). *Lamson* shows the coating provided by the foamed polymer formed singularly on each bond wire. See FIGS. 4a and 4b. The structure presented does not suggest that presented by Applicant.

In contrast with *Lamson*, Applicant's claimed invention achieves impedance control by shielding one or more wires between "an upper strip line" and "lower strip line" (each having dimensions greater than that of a bond wire, as discussed *supra*). "Referring to FIG. 2, in another example embodiment according to the present invention, a strip line arrangement 200 has a lower strip line 205 having an insulating layer 210 applied thereon and an upper strip line 225 also having an insulating layer 220 applied thereon. An air space 235 separates the lower strip line 205 and the upper strip line 225. Bond wires 215 occupy the air space 235. Glue plugs 230 protect the air space 235. The glue prevents the introduction of molding compound between the ground planes and signal wires so that the user may take advantage of the lower dielectric constant of air ( $\epsilon_r = 1.00$ ) compared to that ( $\epsilon_r = 4.4$ ) of the molding compound (Specification, page 4, lines 8-15)."

Therefore, *Cheng* alone or in combination with *Lamson* does not suggest or teach Applicant's invention.

Furthermore, to assert a proper §103 rejection, there must be a basis in the art for combining or modifying references, MPEP §2143.01 provides:

**The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)**

Additionally, the references of *Cheng* and *Lamson* are not properly combinable or modifiable because their intended function would be destroyed.

Modifying *Cheng* to achieve the strip line structure of Applicant's invention would vitiate *Cheng*'s invention. The package of *Cheng* does not use the strip line structure as outlined by the Applicant (see arguments *supra*).

Modifying *Lamson* to achieve a strip line function of that of the Applicant would vitiate *Lamson*'s intent.

It is established case law that when a §103 rejection is based on a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference, such a proposed modification is not proper and a *prima facie* case of obviousness can not be properly made. "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification, *In re Gordon*, 7333 F. 2d 900, 221 USPQ 1125 (Fed. Cir. 1984)"

In view of the foregoing, Applicants respectfully assert that the rejections of claims 2, 3, and 5-9 under 35 USC §103(a) of are improper and should be withdrawn.

### The 2<sup>nd</sup> 103 Rejection

Applicant respectfully traverses the rejection.

*Grellman* is directed to "an electrical connection between two semiconductor devices employs a coplanar microstrap waveguide comprising a plurality of thin straps of conductive metal embedded in a polyimide substrate and dimensioned to exhibit the properties of a coplanar waveguide. The waveguide structure provides the proper impedance matching between the two devices and enables them to handle signals having frequencies in the gigahertz range (Abstract).

The structure of *Grellman* is in contrast with Applicant's invention. By similar reasoning, as argued in the 1<sup>st</sup> 103 Rejection, *Grellman* alone or in combination with *Cheng* does not suggest teach Applicant's claimed features. Applicant does not employ the "microstrap waveguide interconnection" of *Grellman*.

Furthermore, modifying *Grellman* in an effort to meet Applicant's claimed invention would destroy *Grellman's* waveguide structure. For example, transforming straps 30, 32 and 28 to bond wires (by using *Cheng* as the modifier) would completely change *Grellman's* invention. In addition, changing *Grellman's* orientation of the straps to match that of Applicant would vitiate *Grellman's* objective of building a "coplanar microstrap waveguide." Likewise, transforming the bond wires of *Cheng* with the straps of *Grellman* would vitiate *Cheng's* intent.

In view of the foregoing, Applicants respectfully assert that the rejections of claims 10-14 under 35 USC §103(a) of are improper and should be withdrawn.

#### Conclusion

Applicant believes he has addressed all of the Examiner's concerns. Independent claims 1 and 4 are allowable, thus dependent claims 2,3, and 5-14 therefore, are also allowable.

Applicants requests that a timely Notice of Allowance be forthcoming.

Please charge any fees other than the issue fee and credit any overpayments to Deposit Account 14-1270.

Respectfully submitted,

Date: 31-JUL-2006

By Peter Zawilski  
Peter Zawilski, Reg. No. 43,305  
(408) 474-9063

Correspondence Address:

Intellectual Property & Standards  
**Philips Electronics North America Corporation**  
1109 McKay Drive; Mail Stop SJ41  
San Jose, CA 95131 USA

CUSTOMER NO. 24738